

**CLAIMS**

What is claimed is:

1. An implantable or insertable medical device comprising a biodegradable inner material and a biodegradable covering material at least partially covering the inner material; wherein after insertion or implantation into a patient, the medical device becomes decreasingly rigid and increasingly biomechanically compatible with body tissue in contact with the device over time.
2. The medical device of claim 1, wherein the inner material is more flexible than the covering material.
3. The medical device of claim 1, wherein the inner material becomes increasingly flexible upon contact with body fluids.
4. The medical device of claim 3, wherein the covering material substantially controls the rate at which the inner material becomes flexible upon contact with body fluids.
5. The medical device of claim 4, wherein the covering material is a hydrophobic surface erodable polymer.
6. The medical device of claim 1, wherein at least one of the inner material and the covering material is a polymer.
7. The medical device of claim 6 wherein the polymer is a shape memory biodegradable polymer.
8. The medical device of claim 1, wherein the inner material comprises a polymeric core.

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9. The medical device of claim 1, wherein the inner material comprises a metallic core.
10. The medical device of claim 1, wherein the inner material comprises a ceramic core.
11. The medical device of claim 1, wherein the inner material comprises a monofilament core.
12. The medical device of claim 1, wherein the inner material comprises a multifilament core.
13. The medical device of claim 12, wherein the multifilament core comprises woven or braided filaments.
14. The medical device of claim 1, wherein the inner material comprises a tubular structure.
15. The medical device of claim 14, wherein the tubular structure is micromachined or laser-cut.
16. The medical device of claim 1, wherein either or both of the inner material and the covering material contains therein or thereon at least one therapeutic agent.
17. The medical device of claim 1, further comprising one or more additional coating layers.
18. The medical device of claim 17, wherein any of said additional coating layers contains therein or thereon at least one therapeutic agent.
19. The medical device of claim 1, which is an intraluminal stent.

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20. The medical device of claim 19, wherein the intraluminal stent is selected from the group consisting of coronary, biliary, tracheal, gastrointestinal, urethral, ureteral and esophageal stents.
21. The medical device of claim 20, wherein the stent is a self-expandable or balloon-expandable coronary stent.
22. An implantable or insertable medical device comprising a non-biodegradable inner material and a biodegradable covering material at least partially covering the inner material, wherein after insertion or implantation into a patient, the medical device becomes decreasingly rigid and increasingly biomechanically compatible with body tissue in contact with the device over time.
23. The medical device of claim 22, wherein the inner material is more flexible than the covering material.
24. The medical device of claim 22, wherein the inner material becomes increasingly flexible upon contact with body fluids.
25. The medical device of claim 24 wherein the covering material substantially controls the rate at which the inner material becomes flexible upon contact with body fluids.
26. The medical device of claim 25, wherein the covering material is a hydrophobic surface erodable polymer.
27. The medical device of claim 22, wherein at least one of the inner material and the covering material is a polymer.
28. The medical device of claim 27 wherein the polymer is a shape memory biodegradable polymer.

29. The medical device of claim 22, wherein the inner material comprises a polymeric core.
30. The medical device of claim 22, wherein the inner material comprises a metallic core.
31. The medical device of claim 22, wherein the inner material comprises a ceramic core.
32. The medical device of claim 22, wherein the inner material comprises a monofilament core.
33. The medical device of claim 22, wherein the inner material comprises a multifilament core.
34. The medical device of claim 33, wherein the multifilament core comprises woven or braided filaments.
35. The medical device of claim 34, wherein the multifilament core comprises metallic filaments or a composite of metallic and non-metallic filaments.
36. The medical device of claim 35, wherein the non-metallic filaments are biodegradable.
37. The medical device of claim 22, wherein the inner material comprises a tubular structure.
38. The medical device of claim 37, wherein the tubular structure is micromachined or laser-cut.
39. The medical device of claim 22, wherein either or both of the inner material and the covering material contains therein or thereon at least one therapeutic agent.

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40. The medical device of claim 22, further comprising one or more additional coating layers.

41. The medical device of claim 40, wherein any of said additional coating layers contains therein or thereon at least one therapeutic agent.

42. The medical device of claim 22, which is an intraluminal stent.

43. The medical device of claim 42, wherein the intraluminal stent is selected from the group consisting of coronary, biliary, tracheal, gastrointestinal, urethral, ureteral and esophageal stents.

44. The medical device of claim 43, wherein the stent is a self-expandable or balloon-expandable coronary stent.